766-F L35.6/3-1:977/ch.28
EB 4 1983

OCCUPATIONAL SAFETY AND HEALTH SUBSCRIPTION SERVICE

ORIGINAL
COMPLETED
41

VOLUME I—GENERAL INDUSTRY STANDARDS AND INTERPRETATIONS

CHANGE 28—NOVEMBER 15, 1982

OSHA 2077

INTRODUCTION

This change incorporates changes published in the Federal Register and certain editorial corrections:

INSTRUCTIONS

1. Substitute the attached pages as indicated in the following table:

REMOVE EXISTING PAGE	*INSERT CHANGE PAGE*
Title/A thru E	Title/A thru E
1 thru 6	1 thru 6
205/206	205/206
351/352	351/352
491/492	491/492
621 thru 624	621 thru 624
695/696	695/696
790.1/790.2	790.1/790.2
790.2.1/790.2.2	Deleted
790.3 thru 790.14	Deleted
806.15/806.16	806.15/806.16
806.17 thru 806.40	Deleted
807 thru 810	807 thru 810
834.1/834.2	834.1/834.2
834.3 thru 834.26	Deleted
881/882	881/882
943 thru 946	943 thru 946

2. Enter a record of this change on page i.
3. Retain this cover sheet as a record of the contents of this change.

General Industry Standards and Interpretations

July, 1977

Change 28, November 15, 1982

U.S. Department of Labor
Raymond J. Donovan, Secretary
Occupational Safety and Health Administration
Thorne Auchter, Assistant Secretary

Volume 1 OSHA 2077

For sale by the Superintendent of Documents, U.S. Government Printing Office
Washington, D.C. 20402

LIST OF EFFECTIVE PAGES

TOTAL NUMBER OF PAGES IS **1260** AS FOLLOWS:

Page No.	*Issue*
*Title	Change 28
*A thru E	Change 28
i thru ii	Original
iii	Change 10
iv	Original
v thru viii	Change 21
*1 thru 6	Change 28
7 thru 12	Original
13	Change 6
14 thru 16	Original
17	Change 2
18	Change 8
19	Change 12
20	Change 25
20.1 thru 20.6	Change 12
21 thru 28	Original
29	Change 22
30	Original
31 thru 33	Change 22
34	Original
35 thru 40	Change 7
41 thru 54	Deleted
55	Change 7
56	Change 22
57 thru 60	Original
61	Change 22
62 thru 84	Original
85 thru 86	Change 14
87	Change 22
88 thru 90	Original
91 thru 92	Change 14
92.1 thru 92.2	Change 14
93 thru 98	Original
99 thru 100	Change 7
101 thru 106	Original
107	Change 22
108	Original
109	Change 7
110 thru 111	Original
112 thru 113	Change 7
114 thru 131	Original
132	Change 7
133 thru 142	Original
143 thru 144	Change 19
144.1 thru 144.10	Change 19
144.11 thru 144.19	Change 17
144.20 thru 144.21	Change 19
144.22	Change 17
144.23 thru 144.24	Change 19
144.25	Change 22
144.26	Change 19
145	Original
146	Change 7
147 thru 151	Original
152 thru 154	Change 7
155 thru 162	Original
163	Change 7
164 thru 168	Original
169	Change 7
170	Original
171	Change 22
172	Change 7
173 thru 174	Original
175	Change 22
176 thru 177	Original
178 thru 180	Change 7
181 thru 182	Deleted
183 thru 184	Original
185	Change 22
186	Change 7
187 thru 189	Original
190	Change 7
191 thru 193	Original
194	Change 22
195	Original
196 thru 197	Change 7
198	Original
199	Change 7
200	Change 22
201	Change 7
202 thru 204	Original
*205	Change 28
206 thru 207	Original
208	Change 22
209	Change 27
210	Original
211	Change 27
212 thru 213	Original
214	Change 7
215 thru 216	Original
217	Change 22
218	Change 7
219	Original
220	Change 22

* Indicate pages changed, added, or deleted by the current change.

A
I

Page No.	*Issue*
221 thru 222	Original
223	Change 14
224	Change 22
225	Original
226	Change 22
227 thru 228	Original
229 thru 231	Change 22
232	Change 14
233	Original
234	Change 22
235 thru 238	Change 7
239	Original
240 thru 246	Change 7
247 thru 248	Original
249 thru 250	Change 7
251	Original
252	Change 7
253 thru 254	Original
255 thru 256	Change 7
257	Original
258	Change 14
259	Original
260	Change 7
261	Original
262	Change 7
263 thru 270	Original
271 thru 272	Change 7
273	Original
274	Change 22
275	Original
276	Change 7
277 thru 282	Original
283 thru 284	Change 7
285 thru 290	Original
291 thru 292	Change 7
293 thru 296	Original
297 thru 299	Change 7
300 thru 305	Original
306	Change 7
307 thru 310	Original
311	Change 7
312	Original
313	Change 7
314 thru 317	Original
318 thru 319	Change 7
320	Original
321	Change 7
322 thru 323	Original
324	Change 7
235 thru 331	Original
332	Change 22
333 thru 336	Original
337	Change 7
338	Change 22
339 thru 342	Original
343 thru 344	Change 7
345	Change 22
346 thru 349	Original
350	Change 7
*351	Change 28
352 thru 354	Change 7
355 thru 362	Deleted
363 thru 365	Original
366	Change 22
367 thru 368	Change 14
368.1 thru 368.6	Change 14
369	Change 14
370 thru 372	Change 22
373 thru 382	Change 14
382.1 thru 382.18	Change 14
383 thru 384	Original
385	Change 22
386 thru 395	Original
396	Change 22
397 thru 398	Original
399 thru 400	Change 10
400.1 thru 400.2	Change 10
400.3 thru 400.4	Change 12
401	Change 22
402 thru 403	Original
404 thru 406	Change 22
407 thru 408	Original
409	Change 7
410 thru 428	Original
429	Change 22
430 thru 436	Original
437	Change 7
438 thru 476	Original
477	Change 25
478 thru 484	Original
485 thru 489	Change 25
490	Change 22
*491	Change 28
492 thru 493	Original
494	Change 7
495 thru 496	Deleted
497	Change 25
498 thru 500	Original
501	Change 7
502 thru 510	Original
511 thru 512	Change 25
513	Original
514	Change 11
515 thru 516	Original
517	Change 7
518	Original
519 thru 520	Change 11
521	Original
522	Change 25
523 thru 524	Original

Page No.	*Issue*
525	Change 25
526 thru 527	Change 7
528	Change 25
529	Original
530 thru 532	Change 7
533 thru 534	Deleted
535	Change 7
536 thru 539	Original
540	Change 22
541	Original
542	Change 25
543	Original
544 thru 545	Change 7
546	Change 25
547 thru 553	Original
554	Change 22
555 thru 560	Original
561	Change 7
562 thru 563	Original
564 thru 565	Change 7
566 thru 567	Original
568	Change 7
569	Original
570 thru 572	Change 7
573 thru 574	Original
575 thru 576	Change 7
577 thru 579	Original
580 thru 582	Change 7
583	Change 12
584 thru 592	Original
593	Change 7
594 thru 602	Original
603	Change 7
604 thru 612	Original
613	Change 25
614	Original
615 thru 621	Change 7
*622 thru 623	Change 28
624 thru 625	Change 25
626	Change 7
627 thru 640	Deleted
641 thru 645	Original
646	Change 7
647 thru 650	Original
651	Change 25
652 thru 661	Original
662	Change 7
663	Change 25
664	Original
665	Change 7
666	Original
667	Change 25
668 thru 669	Original
670 thru 671	Change 7
672	Original
673	Change 25
674 thru 688	Original
689 thru 692	Change 27
693	Change 16
694	Change 27
694.0.1 thru 694.0.2	Change 16
694.0.3 thru 694.0.4	Change 27
694.0.5	Change 16
694.0.6 thru 694.0.11	Change 27
694.0.12	Change 16
694.0.13	Change 27
694.0.14	Change 16
694.0.15 thru 694.0.24	Change 27
694.0.25 thru 694.0.27	Change 16
694.0.28 thru 694.0.29	Change 27
694.0.30 thru 694.0.31	Change 16
694.0.32	Change 27
694.0.33	Change 16
694.0.34 thru 694.0.36	Change 27
694.0.37 thru 694.0.38	Change 16
694.1	Change 1
694.2	Change 25
694.3 thru 694.9	Change 1
694.10	Change 12
694.11 thru 694.16	Change 1
694.17	Change 12
694.18	Change 1
*695	Change 28
696	Change 22
697 thru 700	Change 8
701	Change 13
702 thru 705	Original
706	Change 12
707	Change 15
708 thru 709	Original
710	Change 7
711 thru 712	Original
713	Change 12
714 thru 715	Original
716	Change 7
717 thru 718	Original
719	Change 12
720 thru 721	Original
722	Change 7
723 thru 724	Original
725	Change 12
726 thru 727	Original
728	Change 7
729 thru 730	Original
731	Change 12
732	Original
733	Change 7
734 thru 736	Original
737	Change 12
738	Original

Page No.	*Issue*
739	Change 7
740 thru 742	Original
743	Change 12
744	Original
745	Change 7
746 thru 748	Original
749	Change 12
750	Original
751	Change 7
752 thru 753	Original
754	Change 12
755 thru 756	Original
757	Change 7
758 thru 759	Original
760	Change 12
761	Original
762	Change 7
763 thru 765	Original
766	Change 12
767	Original
768	Change 7
769 thru 770	Original
771	Change 12
772 thru 773	Original
774	Change 7
775 thru 776	Original
777	Change 12
778 thru 779	Original
780	Change 7
781 thru 782	Original
783	Change 12
784	Original
785	Change 7
786 thru 788	Original
789 thru 790	Change 12
790.0.1 thru 790.0.2	Change 6
790.0.3	Change 4
790.0.4 thru 790.0.6	Change 6
790.0.7	Change 4
790.0.8 thru 790.0.10	Change 6
790.0.11	Change 15
790.0.12	Change 6
790.0.13	Change 12
790.0.14 thru 790.0.15	Change 6
790.0.16	Change 12
790.0.17	Change 8
790.0.18	Change 18
790.0.19 thru 790.0.20	Change 8
790.0.21 thru 790.0.23	Change 12
790.0.24	Change 8
790.0.25 thru 790.0.26	Change 12
790.0.27 thru 790.0.29	Change 8
790.0.30	Change 15
790.0.31	Change 12
790.0.32 thru 790.0.54	Change 9
*790.1 thru 790.2	Change 28
*790.2.1 thru 790.2.2	Deleted
*790.3 thru 790.14	Deleted
791	Change 22
792 thru 798	Original
799	Change 22
800 thru 802	Original
803 thru 804	Change 12
805 thru 806	Original
806.0.1 thru 806.0.7	Change 5
806.0.8	Change 12
806.0.9	Change 5
806.0.10	Change 18
806.0.11 thru 806.0.32	Change 5
806.1 thru 806.7	Change 3
806.8	Change 12
806.9 thru 806.14	Change 3
806.14.1 thru 806.14.9	Change 6
806.14.10	Change 15
806.14.13	Change 12
806.14.14 thru 806.14.22	Change 6
*806.15 thru 806.16	Change 28
*806.17 thru 806.40	Deleted
*807	Change 28
808	Original
*809	Change 28
810	Change 6
811 thru 834	Original
*834.1 thru 834.2	Change 28
*834.3 thru 834.26	Deleted
834.27 thru 834.30	Change 10
834.31	Change 13
834.32	Change 18
834.33 thru 834.35	Change 10
834.36	Change 18
834.37	Change 13
834.38	Change 18
834.39 thru 834.40	Change 10
834.41	Change 18
834.42	Change 13
834.43	Change 18
834.44 thru 834.51	Change 13
834.52	Change 18
834.53 thru 834.58	Change 13
835 thru 862	Change 26
863 thru 874	Deleted
875 thru 880	Original
881	Change 20

***Indicate pages changed, added, or deleted by the current change.**

STANDARDS AND INTERPRETATIONS

Page No.	*Issue*
*882	Change 28
883 thru 908	Change 20
909 thru 928	Change 23
929 thru 943	Change 24
*944 thru 946	Change 28
947 thru 948	Change 24

PART 1910

OCCUPATIONAL SAFETY AND HEALTH STANDARDS

SUBPART A—GENERAL

1910.1 Purpose and scope.
1910.2 Definitions.
1910.3 Petitions for the issuance, amendment, or repeal of a standard.
1910.4 Amendments to this part.
1910.5 Applicability of standards.
1910.6 Incorporation by reference.

SUBPART B—ADOPTION AND EXTENSION OF ESTABLISHED FEDERAL STANDARDS

1910.11 Scope and purpose.
1910.12 Construction work.
1910.13 Ship repairing.
1910.14 Shipbuilding.
1910.15 Shipbreaking.
1910.16 Longshoring.
1910.17 Effective dates.
1910.18 Changes in established Federal standards.
1910.19 Special provisions for air contaminants.

SUBPART C—GENERAL SAFETY AND HEALTH PROVISIONS

1910.20 Access to employee exposure and medical records.

SUBPART D—WALKING—WORKING SURFACES

1910.21 Definitions.
1910.22 General requirements.
1910.23 Guarding floor and wall openings and holes.
1910.24 Fixed industrial stairs.
1910.25 Portable wood ladders.
1910.26 Portable metal ladders.
1910.27 Fixed ladders.
1910.28 Safety requirements for scaffolding.
1910.29 Manually propelled mobile ladder stands and scaffolds (towers).
1910.30 Other working surfaces.
1910.31 Sources of standards.
1910.32 Standards organizations.

SUBPART E—MEANS OF EGRESS

1910.35 Definitions.
1910.36 General requirements.
1910.37 Means of egress, general.
1910.38 Specific means of egress requirements by occupancy.
[Reserved]

1910.39 Sources of standards.
1910.40 Standards organizations.

SUBPART F—POWERED PLATFORMS, MANLIFTS AND VEHICLE-MOUNTED WORK PLATFORMS

1910.66 Power platforms for exterior building maintenance.
1910.67 Vehicle-mounted elevating and rotating work platforms.
1910.68 Manlifts.
1910.69 Sources of standards.
1910.70 Standards organizations.

SUBPART G—OCCUPATIONAL HEALTH AND ENVIRONMENTAL CONTROL

1910.94 Ventilation.
1910.95 Occupational noise exposure.
1910.96 Ionizing radiation.
1910.97 Nonionizing radiation.
1910.98 Additional delay in effective date.
1910.99 Sources of standards.
1910.100 Standards organizations.

SUBPART H—HAZARDOUS MATERIALS

1910.101 Compressed gases (general requirements).
1910.102 Acetylene.
1910.103 Hydrogen.
1910.104 Oxygen.
1910.105 Nitrous oxide.
1910.106 Flammable and combustible liquids.
1910.107 Spray finishing using flammable and combustible materials.
1910.108 Dip tanks containing flammable or combustible liquids.
1910.109 Explosives and blasting agents.
1910.110 Storage and handling of liquified petroleum gases.
1910.111 Storage and handling of anhydrous ammonia.
1910.112 [Reserved]
1910.113 [Reserved]
1910.114 Effective dates.
1910.115 Sources of standards.
1910.116 Standards organizations.

SUBPART I—PERSONAL PROTECTIVE EQUIPMENT

1910.132 General requirements.
1910.133 Eye and face protection.
1910.134 Respiratory protection.
1910.135 Occupational head protection.
1910.136 Occupational foot protection.
1910.137 Electrical protective devices.
1910.138 Effective dates.
1910.139 Sources of standards.
1910.140 Standards organizations.

SUBPART J—GENERAL ENVIRONMENTAL CONTROLS

1910.141 Sanitation.
1910.142 Temporary labor camps.
1910.143 Nonwater carriage disposal systems.
1910.144 Safety color code for marking physical hazards.
1910.145 Specificatons for accident prevention signs and tags.
1910.146 [Reserved]
1910.147 Sources of standards.
1910.148 Standards organizations.
1910.149 Effective dates.

SUBPART K—MEDICAL AND FIRST AID

1910.151 Medical services and first aid.
1910.152 [Reserved]
1910.153 Sources of standards.

SUBPART L—FIRE PROTECTION

1910.155 Scope, application and definitions applicable to this part.
1910.156 Fire brigades.

PORTABLE FIRE SUPPRESSION EQUIPMENT

1910.157 Portable fire extinguishers.
1910.158 Standpipe and hose systems.

FIXED FIRE SUPPRESSION EQUIPMENT

1910.159 Automatic sprinkler systems
1910.160 Fixed extinguishing systems, general.
1910.161 Fixed extinguishing systems, dry chemical.
1910.162 Fixed extinguishing systems, gaseous agent.
1910.163 Fixed extinguishing systems, water, spray and foam.

OTHER FIRE PROTECTION SYSTEMS

1910.164 Fire detection systems
1910.165 Employee alarm systems
Appendices A–E

SUBPART M—COMPRESSED GAS AND COMPRESSED AIR EQUIPMENT

1910.166 Inspection of compressed gas cylinders
1910.167 Safety relief devices for compressed gas cylinders.
1910.168 Safety relief devices for cargo and portable tanks storing compressed gases.
1910.169 Air receivers.
1910.170 Sources of standards.
1910.171 Standards organizations.

SUBPART N—MATERIALS HANDLING AND STORAGE

1910.176 Handling materials—general.
1910.177 Servicing multi-piece rim wheels.
1910.178 Powered industrial trucks.

1910.179 Overhead and gantry cranes.
1910.180 Crawler, locomotive, and truck cranes.
1910.181 Derricks.
1910.182 Effective dates.
1910.183 Helicopters.
1910.184 Slings.
1910.189 Sources of standards.
1910.190 Standards organizations.

SUBPART O—MACHINERY AND MACHINE GUARDING

1910.211 Definitions.
1910.212 General requirements for all machines.
1910.213 Woodworking machinery requirements.
1910.214 Cooperage machinery.
1910.215 Abrasive wheel machinery.
1910.216 Mills and calenders in the rubber and plastics industries.
1910.217 Mechanical power presses.
1910.218 Forging machines.
1910.219 Mechanical power-transmission apparatus.
1910.220 Effective dates.
1910.221 Sources of standards.
1910.222 Standards organizations.

SUBPART P—HAND AND PORTABLE POWERED TOOLS AND OTHER HAND-HELD EQUIPMENT

1910.241 Definitions.
1910.242 Hand and portable powered tools and equipment, general.
1910.243 Guarding of portable powered tools.
1910.244 Other portable tools and equipment.
1910.245 Effective dates.
1910.246 Sources of standards.
1910.247 Standards organizations.

SUBPART Q—WELDING, CUTTING AND BRAZING

1910.251 Definitions.
1910.252 Welding, cutting and brazing.
1910.253 Sources of standards.
1910.254 Standards organizations.

SUBPART R—SPECIAL INDUSTRIES

1910.261 Pulp, paper, and paperboard mills.
1910.262 Textiles.
1910.263 Bakery equipment.
1910.264 Laundry machinery and operations.
1910.265 Sawmills.
1910.266 Pulpwood logging.
1910.267 Agricultural operations.
1910.268 Telecommunications.
1910.274 Sources of standards.
1910.275 Standards organizations.

SUBPART S—ELECTRICAL

1910.301 Introduction
1910.302 Electric utilization systems

1910.303 General requirements
1910.304 Wiring design and protection
1910.305 Wiring methods, components, and equipment for general use
1910.306 Specific purpose equipment and installations
1910.307 Hazardous (classified) locations
1910.308 Special systems
1910.309 [Reserved] Safety-Related Work practices
1910.330
1910.331 [Reserved] Safety-Related Maintenance Requirements
360
1910.361 [Reserved] Safety Requirements for Special Equipment
380
1910.381 [Reserved] Definitions
398
1910.399 Definitions applicable to this subpart
Appendices A–C

Subpart T—Commercial Diving Operations

1910.401 Scope and application.
1910.402 Definitions.
1910.410 Qualifications of dive team.
1910.411 Medical requirements.
1910.420 Safe practice manual.
1910.421 Pre-dive procedures.
1910.422 Procedures during dive.
1910.423 Post-dive procedures.
1910.424 SCUBA diving.
1910.425 Surface-supplied air diving.
1910.426 Mixed-gas diving.
1910.427 Liveboating.
1910.430 Equipment.
1910.440 Recordkeeping requirements.
1910.441 Effective date.
Appendix A
Subpart U–Y [Reserved]

SUBPART Z—TOXIC AND HAZARDOUS SUBSTANCES

1910.1000 Air Contaminants.
1910.1001 Asbestos.
1910.1002 Coal tar pitch volatiles; interpretation of term.
1910.1003 4-Nitrobiphenyl.
1910.1004 alpha-Naphthylamine.
1910.1005 4, 4'-Methylene bis(2-chloroaniline).
1910.1006 Methyl chloromethyl ether
1910.1007 3, 3'-Dichlorobenzine (and its salts)
1910.1008 bis-Chloromethyl ether.
1910.1009 beta-Naphthylamine.
1910.1010 Benzidine.
1910.1011 4-Aminodiphenyl.
1910.1012 Ethyleneimine.
1910.1013 beta-Propiolactone.
1910.1014 2-Acetylaminofluorene.
1910.1015 4-Dimethylaminoazobenzine.

1910.1016 N-Nitrosodimethylamine.
1910.1017 Vinyl Chloride.
1910.1018 Inorganic arsenic.
1910.1025 Lead.
1910.1028 Benzene.
1910.1029 Coke Oven Emissions
1910.1043 Cotton dust.
1910.1044 1,2 - dibromo - 3 - chloropropane.
1910.1045 Acrylonitrile.
1910.1046 Exposure to cotton dust in cotton gins.

AUTHORITY: The provisions of this Part 1910 issued under secs. 6(a), Stat. 84 Stat. 1593, 1598; 29 U.S.C. 655, 657.

trically interconnected. Where the metallic floorplate on which the container stands while filling is electrically connected to the fill stem or where the fill stem is bonded to the container during filling operations by means of a bond wire, the provisions of this section shall be deemed to have been complied with.

(4) Wharves.

(i) Definition, application. The term wharf shall mean any wharf, pier, bulkhead, or other structure over or contiguous to navigable water used in conjunction with a bulk plant, the primary function of which is the transfer of flammable or combustible liquid cargo in bulk between the bulk plant and any tank vessel, ship, barge, lighter boat, or other mobile floating craft; and this subparagraph shall apply to all such installations except Marine Service Stations as covered in paragraph (g) of this section.

(ii) Package cargo. Revoked

(iii) Location. Revoked

(iv) Design and construction. Substructure and deck shall be substantially designed for the use intended. Deck may employ any material which will afford the desired combination of flexibility, resistance to shock, durability, strength, and fire resistance. Heavy timber construction is acceptable.

(v) Tanks. Revoked

(vi) Pumps. Loading pumps capable of building up pressures in excess of the safe working pressure of cargo hose or loading arms shall be provided with bypasses, relief valves, or other arrangement to protect the loading facilities against excessive pressure. Relief devices shall be tested at not more than yearly intervals to determine that they function satisfactorily at the pressure at which they are set.

(vii) Hoses and couplings. All pressure hoses and couplings shall be inspected at intervals appropriate to the service. The hose and couplings shall be tested with the hose extended and using the "inservice maximum operating pressures." Any hose showing material deteriorations, signs of leakage, or weakness in its carcass or at the couplings shall be withdrawn from service and repaired or discarded.

(viii) Piping and fittings. Piping, valves, and fittings shall be in accordance with paragraph (c) of this section, with the following exceptions and additions:

(a) Flexibility of piping shall be assured by appropriate layout and arrangement of piping supports so that motion of the wharf structure resulting from wave action, currents, tides, or the mooring of vessels will not subject the pipe to repeated strain beyond the elastic limit.

(b) Pipe joints depending upon the friction characteristics of combustible materials or grooving of pipe ends for mechanical continuity of piping shall not be used.

(c) Swivel joints may be used in piping to which hoses are connected, and for articulated swivel-joint transfer systems, provided that the design is such that the mechanical strength of the joint will not be impaired if the packing

material should fail, as by exposure to fire.

(d) Piping systems shall contain a sufficient number of valves to operate the system properly and to control the flow of liquid in normal operation and in the event of physical damage.

(e) In addition to the requirements of subdivision (*d*) of this subdivision, each line conveying flammable liquids leading to a wharf shall be provided with a readily accessible block valve located on shore near the approach to the wharf and outside of any diked area. Where more than one line is involved, the valves shall be grouped in one location.

(f) Means of easy access shall be provided for cargo line valves located below the wharf deck.

(g) Pipelines on flammable or combustible liquids wharves shall be adequately bonded and grounded. If excessive stray currents are encountered, insulating joints shall be installed. Bonding and grounding connections on all pipelines shall be located on wharf-side of hose-riser insulating flanges, if used, and shall be accessible for inspection.

(h) Hose or articulated swivel-joint pipe connections used for cargo transfer shall be capable of accommodating the combined effects of change in draft and maximum tidal range, and mooring lines shall be kept adjusted to prevent the surge of the vessel from placing stress on the cargo transfer system.

(i) Hose shall be supported so as to avoid kinking and damage from chafing.

(ix) Fire protection. Suitable portable fire extinguishers with a rating of not less than 12–BC shall be located within 75 feet of those portions of the facility where fires are likely to occur, such as hose connections, pumps, and separator tanks.

(a) Where piped water is available, ready-connected fire hose in size appropriate for the water supply shall be provided so that manifolds where connections are made and broken can be reached by at least one hose stream.

(b) Material shall not be placed on wharves in such a manner as to obstruct access to firefighting equipment, or important pipeline control valves.

(c) Where the wharf is accessible to vehicle traffic, an unobstructed roadway to the shore end of the wharf shall be maintained for access of firefighting apparatus.

(x) Operations control. Loading or discharging shall not commence until the wharf superintendent and officer in charge of the tank vessel agree that the tank vessel is properly moored and all connections are properly made. Mechanical work shall not be performed on the wharf during cargo transfer, except under special authorization based on a review of the area involved, methods to be employed, and precautions necessary.

(5) Electrical equipment.

(i) Application. This subparagraph shall apply to areas where Class I liquids are stored or handled. For areas where Class II or Class III liquids only are stored or handled, the electrical equipment may be installed in accordance with the provisions of subpart S of this part, for ordinary locations.

(ii) Conformance. All electrical equipment and wiring shall be of a type specified by and shall be installed in accordance with subpart S of this part.

(iii) Classification. So far as it applies Table H–18 shall be used to delineate and classify hazardous areas for the purpose of installation of electrical equipment under normal circumstances. In Table H–18 a classified area shall not extend beyond an unpierced wall, roof, or other solid partition. The area classifications listed shall be based on the premise that the installation meets the applicable requirements of this section in all respects.

(b) Definitions.

As used in this section, the word "sign" refers to a surface on which letters or other markings appear, prepared for the warning of, or safety instructions of, industrial workers or members of the public who may be exposed to hazards. Excluded from this definition, however, are news releases, displays commonly known as safety posters, and bulletins used for employee education.

(c) Classification of signs according to use.

(1) Danger signs.

(i) Danger signs should be used only where an immediate hazard exists. There shall be no variation in the type of design of signs posted to warn of specific dangers and radiation hazards.

(ii) All employees shall be instructed that danger signs indicate immediate danger and that special precautions are necessary.

(2) Caution signs.

(i) Caution signs shall be used only to warn against potential hazards or to caution against unsafe practices.

(ii) All employees shall be instructed that caution signs indicate a possible hazard against which proper precaution should be taken.

(3) Safety instruction signs. Safety instruction signs shall be used where there is a need for general instructions and suggestions relative to safety measures.

(d) Sign design

(1) Design features. All signs shall be furnished with rounded or blunt corners and shall be free from sharp edges, burrs, splinters, or other sharp projections. The ends or heads of bolts or other fastening devices shall be located in such a way that they do not constitute a hazard.

(2) Danger signs.

(i) The colors red, black, and white shall be those of opaque glossy samples as specified in Table 1 of Fundamental Specification of Safety Colors for CIE Standard Source "C", American National Standard Z53.1–1967.

(ii) Revoked

(3) Radiation warning signs. Revoked

(4) Caution signs.

(i) Standard color of the background shall be yellow; and the panel, black with yellow letters. Any letters used against the yellow background shall be black. The colors shall be those of opaque glossy samples as specified in Table 1 of American National Standard Z53.1–1967.

(5) Exit signs. Revoked

(6) Safety instruction signs.

(i) Standard color of the background shall be white; and the panel, green with white letters. Any letters used against the white background shall be black. The colors shall be those of opaque glossy samples as specified in Table 1 of American National Standard, Z53.1–1967.

(7) Directional signs. Revoked

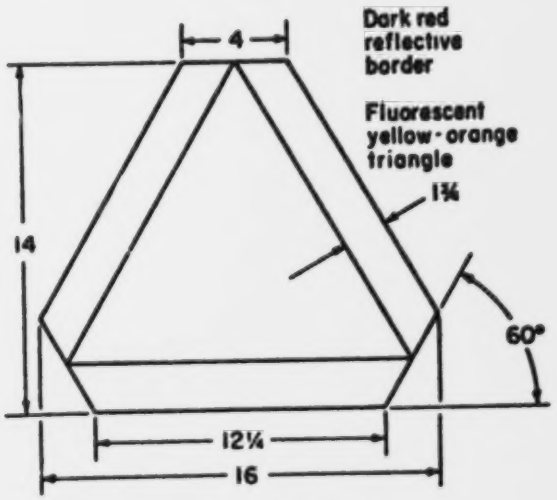
(8) In-Plant traffic signs. Revoked

(9) Informational signs. Revoked

(10) Slow-moving vehicle emblem. This emblem (see Fig. J—7) consists of a fluorescent yellow-orange triangle with a dark red reflective border. The yellow-orange fluorescent triangle is a highly visible color for daylight exposure. The reflective border defines the shape of the fluorescent color in daylight and creates a hollow red triangle in the path of motor vehicle headlights at night. The

INTERP

emblem is intended as a unique identification for, and it shall be used only on, vehicles which by design move slowly (25 m.p.h. or less) on the public roads. The emblem is not a clearance marker for wide machinery nor is it intended to replace required lighting or marking of slow-moving vehicles. Neither the color film pattern and its dimensions nor the backing shall be altered to permit use of advertising or other markings. The material, location, mounting, etc., of the emblem shall be in accordance with the American Society of Agricultural Engineers Emblem for Identifying Slow-Moving Vehicles, ASAE R276, 1967, or ASAE S276.2 (ANSI B114.1–1971).



NOTE: All dimensions are in inches.

Fig. J-7
Slow-Moving Vehicle Emblem

(e) Sign wordings.

(1) Examples of wordings. Revoked

(2) Nature of wording. The wording of any sign should be easily read and concise. The sign should contain sufficient information to be easily understood. The wording should make a positive, rather than negative suggestion and should be accurate in fact.

(3) Danger signs. Revoked

(4) Biological hazard signs. The biological hazard warning shall be used to signify the actual or potential presence of a biohazard and to identify equipment, containers, rooms, materials, experimental animals, or combinations thereof, which contain, or are contaminated with, viable hazardous agents. For the purpose of this subparagraph the term "biological hazard," or "biohazard," shall include only those infectious agents presenting a risk or potential risk to the well-being of man.

The symbol design shall be a fluorescent orange or orange-red color. Background color is optional as long as there is sufficient contrast for the symbol to be clearly defined. Appropriate wording may be used in association with the symbol to indicate the nature or identity of the hazard, name of individual responsible for its control, precautionary information, etc., but never should this information be superimposed on the symbol.

(f) Accident prevention tags.

(1) Scope and purpose.

(i) The tags are a temporary means of warning all concerned of a hazardous condition, defective equipment, radiation hazards, etc. The tags are not to be considered as a complete warning method, but should be used until a positive means can be employed to eliminate the hazard; for example, a "Do Not Start" tag on power equipment shall be used for a few moments or a very short time until the switch in the system can be locked out; a "Defective Equipment" tag shall be placed on a damaged ladder and immediate arrangements made for the ladder to be taken out of service and sent to the repair shop.

(ii) The purpose of this paragraph is to establish a set of specifications for tags based on experience and previous use. The tags are to be used in industry, mercantile establishments, or wherever such tags can be utilized to help prevent accidental injury to personnel

10
BEST DOCUMENT AVAILABLE

(3) Each tenoning machine shall have all cutting heads, and saws if used, covered by metal guards. These guards shall cover at least the unused part of the periphery of the cutting head. If such a guard is constructed of sheet metal, the material used shall be not less than one-sixteenth inch in thickness, and if cast iron is used, it shall be not less than three-sixteenths inch in thickness.

(4) Where an exhaust system is used, the guard shall form part or all of the exhaust hood and shall be constructed of metal of a thickness not less than that specified in subparagraph (3) of this paragraph.

(l) Boring and mortising machines.

(1) Safety-bit chucks with no projecting set screws shall be used.

(2) Boring bits should be provided with a guard that will enclose all portions of the bit and chuck above the material being worked.

(3) The top of the cutting chain and driving mechanism shall be enclosed.

(4) If there is a counterweight, one of the following or equivalent means shall be used to prevent its dropping:

(i) It shall be bolted to the bar by means of a bolt passing through both bar and counterweight;

(ii) A bolt shall be put through the extreme end of the bar;

(iii) Where the counterweight does not encircle the bar, a safety chain shall be attached to it;

(iv) Other types of counterweights shall be suspended by chain or wire rope and shall travel in a pipe or other suitable enclosure wherever they might fall and cause injury.

(5) Universal joints on spindles of boring machines shall be completely enclosed in such a way as to prevent accidental contact by the operator.

(6) Each operating treadle shall be covered by an inverted U-shaped metal guard, fastened to the floor, and of adequate size to prevent accidental tripping.

(m) Wood shapers and similar equipment.

(1) The cutting heads of each wood shaper, hand-fed panel raiser, or other similar machine not automatically fed, shall be enclosed with a cage or adjustable guard so designed as to keep the operator's hand away from the cutting edge. The diameter of circular shaper guards shall be not less than the greatest diameter of the cutter. In no case shall a warning device of leather or other material attached to the spindle be acceptable.

(2) Cylindrical heads should be used whenever the nature of the work will permit.

(3) All double-spindle shapers shall be provided with a spindle starting and stopping device for each spindle.

(n) Planing, molding, sticking, and matching machines.

(1) Each planing, molding, sticking, and matching machine shall have all cutting heads, and saws if used, covered by a metal guard. If such guard is constructed of sheet metal, the material used shall be not less than 1/16 inch in thickness, and if cast iron is used, it shall be not less than three-sixteenths inch in thickness.

(2) Where an exhaust system is used, the guards shall form part or all of the exhaust hood and shall be constructed of metal of a thickness not less than that specified in subparagraph (1) of this paragraph.

(3) Feed rolls shall be guarded by a hood or suitable guard to prevent the hands of the operator from coming in contact with the in-running rolls at any point. The guard shall be fastened to the frame carrying the

BEST DOCUMENT AVAILABLE

rolls so as to remain in adjustment for any thickness of stock.

(4) Surfacers or planers used in thicknessing multiple pieces of material simultaneously shall be provided with sectional infeed rolls having sufficient yield in the construction of the sections to provide feeding contact pressure on the stock, over the permissible range of variation in stock thickness specified or for which the machine is designed. In lieu of such yielding sectional rolls, suitable section kickback finger devices shall be provided at the infeed end.

(o) Profile and swing-head lathes and wood heel turning machine.

(1) Each profile and swing-head lathe shall have all cutting heads covered by a metal guard. If such a guard is constructed of sheet metal, the material used shall be not less than one-sixteenth inch in thickness; and if cast iron is used, it shall not be less than three-sixteenths inch in thickness.

(2) Cutting heads on wood-turning lathes, whether rotating or not, shall be covered as completely as possible by hoods or shields, which should be hinged to the machines so that they can be thrown back for making adjustments.

(3) Shoe last and spoke lathes, doweling machines, wood heel turning machines, and other automatic wood-turning lathes of the rotating knife type shall be equipped with hoods enclosing the cutter blades completely except at the contact points while the stock is being cut.

(4) Lathes used for turning long pieces of wood stock held only between the two centers shall be equipped with long curved guards extending over the tops of the lathes in order to prevent the work pieces from being thrown out of the machines if they should become loose.

(5) Where an exhaust system is used, the guard shall form part or all of the exhaust hood and shall be constructed of metal of a thickness not less than that specified in subparagraph (1) of this paragraph.

(p) Sanding machines.

(1) Feed rolls of self-feed sanding machines shall be protected with a semicylindrical guard to prevent the hands of the operator from coming in contact with the in-running rolls at any point. The guard shall be constructed of heavy material, preferably metal, and firmly secured to the frame carrying the rolls so as to remain in adjustment for any thickness of stock. The bottom of the guard should come down to within three-eighths inch of a plane formed by the bottom or contact face of the feed roll where it touches the stock.

(2) Each drum sanding machine shall have an exhaust hood, or other guard if no exhaust system is required, so arranged as to enclose the revolving drum, except for that portion of the drum above the table, if a table is used, which may be necessary and convenient for the application of the material to be finished.

(3) Each disk sanding machine shall have the exhaust hood, or other guard if no exhaust system is required, so arranged as to enclose the revolving disk, except for that portion of the disk above the table, if a table is used, which may be necessary for the application of the material to be finished.

(4) Belt sanding machines shall be provided with guards at each nip point where the sanding belt runs on to a pulley. These guards shall effectively prevent the hands or fingers of the operator from coming in contact with the nip points. The unused run of the sanding belt shall be guarded against accidental contact.

(q) Veneer cutters and wringers.

(1) Veneer slicer knives shall be guarded to prevent accidental contact with knife edge, at both front and rear.

(2) Veneer clippers shall have automatic feed or shall be provided with a guard which will make it impossible to place a finger or fingers under the knife while feeding or removing the stock.

Hazards of Sugar and Cocoa), NFPA 656—1959 (Standard for Dust Hazards in Spice Grinding Plants).

(ii) Magnetic separators shall be provided to reduce fire and explosion hazards.

(3) Cheese, fruit, and food cutters. These machines shall be protected in accordance with the requirements of subparagraph (1) of this paragraph.

(4) Jam, icing, and marshmallow beaters of horizontal tub type. Revoked

(5) Reversible dough brakes. Reversible brakes shall be provided with a guard or tripping mechanism on each side of the rolls. These guards shall be so arranged as to stop the machine or reverse the direction of the rolls so that they are outrunning if the guard is moved by contact of the operator.

(6) Cross-roll brakes. Cross-roll brakes shall be provided with guards that are similar in number and equal in effectiveness to guards on hand-fed brakes.

(7) Box- and roll-type dough sheeters.

(i) Revoked

(ii) Hoppers for sheeters shall have an automatic stop bar or automatic stopping device along the back edge of the hopper. If construction does not permit location at the back edge, the automatic stop bar or automatic stopping device shall be located where it will be most effective to accomplish the desired protection.

(8) Cutting and panning, embossing, peeling, bar, and frutana machines. Revoked

(9) Rotary, die machines, pretzel rolling, and pretzel-stick extruding machines. Dough hoppers shall have the entire opening protected with substantial grid-type guards to prevent the employee from getting his hands caught in moving parts, or the hopper shall be extended high enough so that the operator's hands cannot get into moving parts.

(10) Band ovens. Revoked

(11) Wafer-cutting machines. Revoked

(12) Pan cooling towers.

(i) Where pan cooling towers extend to two or more floors, a lockout switch shall be provided on each floor in order that mechanics working on the tower may positively lock the mechanism against starting. Only one start switch shall be used in the motor control circuit.

(13) Chocolate melting, refining, and mixing kettles. Each kettle shall be provided with a cover to enclose the top of the kettle. The bottom outlet of each kettle shall be of such size and shape that the operator cannot reach in to touch the revolving paddle or come in contact with the shear point between the paddle and the side of the kettle.

(14) Caddie, cover, and box stitchers

Revoked

(15) Carton-wrapping and bundling machines.

Revoked

(16) Carton and lining feeding machines. Revoked

(17) Peanut cooling trucks. Mechanically operated peanut cooling trucks shall have a grid-type cover over the entire top.

(l) Ovens.

(1) General location.

(i) thru (vi) Revoked

(vii) Ovens shall be located so that possible fire or explosion will not expose groups of persons to possible injury. For this reason ovens shall not adjoin lockers, lunch or sales rooms, main passageways, or exits.

(2) Recommended construction. Revoked

(3) Safeguards of mechanical parts.

(i) Emergency stop buttons shall be provided on mechanical ovens near the point where operators are stationed.

(ii) All piping at ovens shall be tested to be gastight.

(iii) Main shutoff valves, operable separately from any automatic valve, shall be provided to permit turning off the fuel or steam in case of an emergency.

(a) Main shutoff valves shall be located so that explosions, fires, etc. will not prevent access to these valves.

(b) Main shutoff valves shall be locked in the closed position when men must enter the oven or when the oven is not in service.

(4) thru (7). Revoked

(8) Electrical heating equipment.

(i) Revoked

(ii) Revoked

(iii) A main disconnect switch or circuit breaker shall be provided. This switch or circuit breaker shall be so located that it can be reached quickly and safely. The main switch or circuit breaker shall have provisions for locking it in the open position if any work on the electrical equipment or inside the oven must be performed.

(9) General requirements.

(i) Protecting devices shall be properly maintained and kept in working order.

(ii) All safety devices on ovens shall be inspected at interval. of not less than twice a month by an especially appointed, properly instructed bakery employee, and not less than once a year by representatives of the oven manufacturers.

(iii)

(a) Protection of gas pilot lights shall be provided when it is impracticable to protect the main flame of the burner and where the pilot flame cannot contact the flame electrode without being in the path of the main flame of the burner. Failure of any gas pilot shall automatically shut off the fuel supply to the burner.

(b) Ovens with multiple burners shall be equipped with individual atmospheric pilot lights where there is sufficient secondary air in the baking chamber and where gas is available; or else each burner shall be equipped with an electric spark type ignition device.

(iv) Burners of a capacity exceeding 150,000 B.t.u. per hour equipped with electric ignition shall be protected in addition by quick-acting combustion safeguards.

(a) The high-tension current for any electric spark-type ignition device shall originate in a power supply line which is interlocked with the fuel supply for the oven in such a way that in case of current failure both the source of electricity to the high-tension circuits and the fuel supply shall be turned off simultaneously.

(b) Revoked

(c) Combustion safeguards used in connection with electric ignition systems on ovens shall be so designed as to prevent an explosive mixture from accumulating inside the oven before ignition has taken place.

(v) When fuel is supplied and used at line pressure, safety shutoff valves shall be provided in the fuel line leading to the burner.

(a) When fuel is supplied in excess of line pressure, safety shutoff valves shall be provided in the fuel line leading to the burners, unless the fuel supply lines are equipped with other automatic

valves which will prevent the flow of fuel when the compressing equipment is stopped.

(b) The safety shutoff valve shall be positively tight and shall be tested at least twice monthly.

(c) and (d) Revoked

(e) A safety shutoff valve shall require manual operation for reopening after it has closed, or the electric circuit shall be so arranged that it will require a manual operation for reopening the safety shutoff valve.

(f) Manual reset-type safety shutoff valves shall be so arranged that they cannot be locked in an open position by external means.

(g) Where blowers are used for supplying the air for combustion the safety shutoff valve shall be interlocked so that it will close in case of air failure.

(h) Where gas or electric ignition is used, the safety shutoff valve shall close in case of ignition failure. On burners equipped with combustion safeguards, the valve shall close in case of burner flame failure.

(vi) One main, manually operated, fuel shutoff valve shall be provided on each oven, and shall be located ahead of all other valves in the system.

(vii) All individual gas or oil burners with a heating capacity over 150,000 B.t.u. per hour shall be protected by a safeguard which is actuated by the flame and which will react to flame failure in a time interval not to exceed 2 seconds. All safeguards, once having shut down a gas or oil burner, shall require manual resetting and starting of the burner or burners.

(viii) Any space in an oven (except direct fired ovens) which could be filled with an explosive mixture shall be protected by explosion vents. Explosion vents shall be made of minimum weight consistent with adequate insulation.

(a) Explosion doors which have a substantial weight shall be attached by chains or similar means to prevent flying parts from injuring the personnel in case of an explosion.

(b) Where explosion vents are so located that flying parts or gases might endanger the personnel working on or near the oven, internal or external protecting means shall be provided in the form of heavily constructed shields or deflectors made from noncombustible material.

(c) Specifically exempted from the provisions of subdivision (viii) of this subparagraph are heating systems on ovens in which the fuel is admitted only to enclosed spaces which shall have been tested to prove that their construction will resist repeated explosions without deformation are exempt from the requirements of subdivisions (viii) (a) and (b) of this paragraph.

(ix) **Flues and dampers.** Revoked

(x) Revoked

(xi) Where the gas supply pressure is substantially higher than that at which the burners of an oven are designed to operate, a gas pressure regulator shall be employed.

(a) Revoked

(b) Revoked

(c) Revoked.

(d) A relief valve shall be placed on the outlet side of gas pressure regulators where gas is supplied at high pressure. The discharge from this valve shall be piped to the outside of the building.

(10) Direct-fired ovens.

(i) Direct-fired ovens shall be safeguarded against failure of fuel, air, or ignition.

(ii) To prevent the possible accumulation of explosive gases from being ignited after a shutdown, all direct-fired ovens with a heating capacity over 150,000 B.t.u. per hour shall be ventilated before the ignition system, combustion air blower, and the fuel can be turned on. The preventilation shall insure at least four complete changes of atmosphere in the baking chamber by discharging the oven atmosphere to the outside of the building and entraining fresh air into it. The preventilation shall be repeated whenever the heating equipment is shut down by a safety device.

(11) Direct recirculating ovens.

(i) Each circulating fan in direct recirculating ovens shall be interconnected with the burner in such a manner that the fuel is shut off by a safety valve when the fan is not running.

(ii) The flame of the burner or burners in direct recirculating ovens shall be protected by a quick-acting flame-sensitive safeguard which will automatically shut off the fuel supply in case of burner failure.

(12) Flue-type ovens. Revoked

(13) Indirect-fired multiple burner ovens. Revoked

(14) Steam-tube ovens. Revoked

(15) Indirect recirculating ovens.

(i) Revoked

(ii) Revoked

(iii) Duct systems (in ovens) operating under pressure shall be tested for tightness in the initial starting of the oven and also at intervals not farther apart than 6 months.

1910.264—LAUNDRY MACHINERY AND OPERATIONS

(a) Definitions applicable to this section.

Revoked

(b) General requirements.

This section applies to moving parts of equipment used in laundries and to conditions peculiar to this industry, with special reference to the point of operation of laundry machines. This section does not apply to dry-cleaning operations.

(c) Point-of-operation guards.

(1) Washroom machines.

(i) Marking machine. Revoked

INTERP

(ii) Washing machine.

(a) Revoked

(b) Each washing machine shall be provided with means for holding open the doors or covers of inner and outer cylinders or shells while being loaded or unloaded.

(iii) Extractor. Revoked

(2) Starching and drying machines.

(i) Starching machine (cylinder or box type).

Revoked

(ii) Drying-room fan. Revoked

(iii) Drying tumbler.

(a) Revoked

No

PART 1910

OCCUPATIONAL SAFETY AND HEALTH STANDARDS

SUBPART Z—TOXIC AND HAZARDOUS SUBSTANCES

1910.1000 Air Contaminants.
1910.1001 Asbestos.
1910.1002 Coal tar pitch volatiles; interpretation of term.
1910.1003 4-Nitrobiphenyl.
1910.1004 alpha-Naphthylamine.
1910.1005 4, 4'-Methylene bis(2-chloroaniline).
1910.1006 Methyl chloromethyl ether
1910.1007 3, 3'-Dichlorobenzine (and its salts)
1910.1008 bis-Chloromethyl ether.
1910.1009 beta-Naphthylamine.
1910.1010 Benzidine.
1910.1011 4-Aminodiphenyl.
1910.1012 Ethyleneimine.
1910.1013 beta-Propiolactone.
1910.1014 2-Acetylaminofluorene.
1910.1015 4-Dimethylaminoazobenzine.
1910.1016 N-Nitrosodimethylamine.
1910.1017 Vinyl Chloride.
1910.1018 Inorganic arsenic.
1910.1025 **Lead.**
1910.1028 Removed
1910.1029 Coke Oven Emissions
1910.1043 Cotton dust.
1910.1044 1,2 - dibromo - 3 - chloropropane.
1910.1045 Acrylonitrile.
1910.1046 Removed

SUBPART Z—TOXIC AND HAZARDOUS SUBSTANCES

INTERP

1910.1000—AIR CONTAMINANTS

An employee's exposure to any material listed in table Z–1, Z–2, or Z–3 of this section shall be limited in accordance with the requirements of the following paragraphs of this section.

(a) Table Z–1:

(1) Materials with names preceded by "C"—ceiling values. An employee's exposure to any material in table Z–1, the name of which is preceded by a "C" (e.g., C Boron triflouride), shall at no time exceed the ceiling value given for that material in the table.

(2) Other materials—8-hour time weighted averages. An employee's exposure to any material in table Z–1, the name of which is not preceded by "C", in any 8-hour work shift of a 40-hour work week, shall not exceed the 8-hour time weighted average given for that material in the table.

TABLE Z–1

Substance	p.p.m.[a]	mg./M³ [b]
Acetaldehyde	200	360
Acetic acid	10	25
Acetic anhydride	5	20
Acetone	1,000	2,400
Acetonitrile	40	70
Acetylene dichloride, see 1, 2-Dichloroethylene		
Acetylene tetrabromide	1	14
Acrolein	0.1	0.25
Acrylamide—Skin		0.3
Aldrin—Skin		0.25
Allyl alcohol—Skin	2	5
Allyl chloride	1	3
C Allylglycidyl ether (AGE)	10	45
Allyl propyl disulfide	2	12
2-Aminoethanol, see Ethanolamine		
2-Aminopyridine	0.5	2
Ammonia	50	35
Ammonium sulfamate (Ammate)		15
n-Amyl acetate	100	525
sec-Amyl acetate	125	650
Aniline—Skin	5	19
Anisidine (o, p-isomers)—Skin		0.5
Antimony and compounds (as Sb)		0.5
ANTU (alpha naphthyl thiourea)		0.3

See footnotes at end of table.

TABLE Z–1—Continued

Substance	p.p.m.[a]	mg./M³ [b]
Arsine	0.05	0.2
Azinphos-methyl—Skin		0.2
Barium (soluble compounds)		0.5
p-Benzoquinone, see Quinone		
Benzoyl peroxide		5
Benzyl chloride	1	5
Biphenyl, see Diphenyl		
Boron oxide		15
C Boron trifluoride	1	3
Bromine	0.1	0.7
Bromoform—Skin	0.5	5
Butadiene (1, 3-butadiene)	1,000	2,200
Butanethiol, see Butyl mercaptan		
2-Butanone	200	590
2-Butoxy ethanol (Butyl Cellosolve)—Skin	50	240
Butyl acetate (n-butyl acetate)	150	710
sec-Butyl acetate	200	950
tert-Butyl acetate	200	950
Butyl alcohol	100	300
sec-Butyl alcohol	150	450
tert-Butyl alcohol	100	300
C Butylamine—Skin	5	15
C tert-Butyl chromate (as CrO_3)—Skin		0.1
n-Butyl glycidyl ether (BGE)	50	270
Butyl mercaptan	10	35
p-tert-Butyltoluene	10	60
Calcium oxide		5
Camphor		2
Carbaryl (Sevin ®)		5
Carbon black		3.5
Carbon dioxide	5,000	9,000
Carbon monoxide	50	55
Chlordane—Skin		0.5
Chlorinated camphene—Skin		0.5
Chlorinated diphenyl oxide		0.5
C Chlorine	1	3
Chlorine dioxide	0.1	0.3
C Chlorine trifluoride	0.1	0.4
C Chloroacetaldehyde	1	3
α-Chloroacetophenone (phenacylchloride)	0.05	0.3
Chlorobenzene (monochlorobenzene)	75	350
o-Chlorobenzylidene malononitrile (OCBM)	0.05	0.4
Chlorobromomethane	200	1,050
2-Chloro-1,3-butadiene, see Chloroprene		
Chlorodiphenyl (42 percent Chlorine)—Skin		1
Chlorodiphenyl (54 percent Chlorine)—Skin		0.5
1-Chloro,2,3-epoxypropane, see Epichlorhydrin		
2-Chloroethanol, see Ethylene chlorohydrin		

BEST DOCUMENT AVAILABLE

18

1910.1028 BENZENE

Removed

[46 F.R. 32022, June 19, 1981]

Removed

Page 790.2.1 thru 790.2.2 and

790.3 thru 790.14 deleted

1910.1046—EXPOSURE TO COTTON DUST IN COTTON GINS

Removed

[46 F.R. 32022, June 19, 1981]

Pages 806.17 thru 806.40 Deleted

1910.1499—SOURCE OF STANDARDS

Section 1910.1000. .41CFR 50-204.50, except for Table Z-2, the source of which is American National Standards Institute, Z37 series.

1910.1500—STANDARDS ORGANIZATIONS

Specific standards of the following organizations have been referred to in this subpart. Copies of the standards may be obtained from the issuing organization.

American Conference of Governmental
Industrial Hygienists
1014 Broadway
Cincinnati, Ohio 45202

American National Standards Institute
1430 Broadway
New York, New York 10018

PART 1928

OCCUPATIONAL SAFETY AND HEALTH STANDARDS FOR AGRICULTURE

SUBPART A—GENERAL

1928.1 Purpose and scope.

SUBPART B—APPLICABILITY OF STANDARDS

1928.21 Applicable standards in 29 CFR Part 1910.

SUBPART C—ROLL-OVER PROTECTIVE STRUCTURES

1928.51 Roll-over protective structures (ROPS) for tractors, used in agricultural operations.
1928.52 Protective frames for wheel type agricultural tractors-test procedures and performance requirements.
1928.53 Protective enclosures for wheel type agricultural tractors-test procedures and performance requirements.

SUBPART D—SAFETY FOR AGRICULTURAL EQUIPMENT

1928.57 Guarding of farm field equipment, farmstead equipment, and cotton gins.

SUBPART I—TOXIC AND HAZARDOUS SUBSTANCES

1928.113 Removed

AUTHORITY: Sec. 6(b), Pub L. 91-596, 84 Stat. 1593 (29 U.S.C. 655), Secretary of Labor's Order No. 12-71, 36 FR 8754.

SOURCE: The provisions of this part 1928 appear at 40 F.R. 18254, April 25, 1975, unless otherwise noted.

25 BEST DOCUMENT AVAILABLE

SUBPART A—GENERAL

1928.1—PURPOSE AND SCOPE

This part contains occupational safety and health standards applicable to agricultural operations.

SUBPART B—APPLICABILITY OF STANDARDS

1928.21—APPLICABLE STANDARDS IN 29 CFR PART 1910

(a) The following standards in Part 1910 of this Chapter shall apply to agricultural operations:

(1) Temporary labor camps—§ 1910.142;

(2) Storage and handling of anhydrous ammonia—§ 1910.111(a) and (b);

(3) Pulpwood logging—§ 1910.266;

(4) Slow-moving vehicles—§ 1910.145.

(b) Except to the extent specified in paragraph-(a) of this section, the standards contained in Subparts B through T and Subpart Z of Part 1910 of this title do not apply to agricultural operations.

[42 F.R. 38569, July 29, 1977.]

SUBPART C—ROLL-OVER PROTECTIVE STRUCTURE

1928.51—ROLL-OVER PROTECTIVE STRUCTURES (ROPS) FOR TRACTORS USED IN AGRICULTURAL OPERATIONS

(a) Definitions. As used in this subpart—

"Agricultural tractor" means a two- or four-wheel drive type vehicle, or track vehicle, of more than 20 engine horsepower, designed to furnish the power to pull, carry, propel, or drive implements that are designed for agriculture. All self-propelled implements are excluded.

"Low profile tractor" means a wheeled tractor possessing the following characteristics:

(1) The front wheel spacing is equal to the rear wheel spacing, as measured from the centerline of each right wheel to the centerline of the corresponding left wheel.

(2) The clearance from the bottom of the tractor chassis to the ground does not exceed 18 inches.

(3) The highest point of the hood does not exceed 60 inches, and

BEST DOCUMENT AVAILABLE

26

SUBPART I—TOXIC AND HAZARDOUS SUBSTANCES

1928.113—EXPOSURE TO COTTON DUST IN COTTON GINS

Removed

[46 F.R. 32022, June 19, 1981]

Pages 834.3 thru 834.26 Deleted

Appendix C

INTERPRETATIONS

INDEX TO INTERPRETATIONS

Section/Paragraph	*STD No.*	*Page No.*
Hard Hats; Exemption	1–6.3	900
Hazard Alert; Aerial Lift.	1–3.2	887
1910.20	1–24.1	946
1910.22(b)(2)	1–1.4	883
1910.23(c)	1–1.8	885
1910.23(c)(1)	1–1.5	884
1910.23(c)(1)	1–1.7	885
1910.23(e)(1)	1–1.10	886
1910.23(e)(2)	1–1.7	885
1910.23(e)(3)(ii)	1–1.1	883
1910.23(e)(5)(iii)	1–1.6	884
1910.27	1–1.9	885
1910.27(d)(5)	1–1.3	883
1910.36(b)(8)	1–2.1	887
1910.68	1–3.1	887
1910.96	1–4.1	888
1910.104(b)(3)(iii)	1–5.8	893
1910.106(a)(14)	1–5.9	894
1910.106(b)(2)(vii)	1–5.2	890
1910.106(b)(2)(vii)(c)(4)	1–5.4	891
1910.106(d)(2)(i)	1–5.14A	897
1910.106(e)(2)	1–5.7	893
1910.106(e)(2)(ii)(b)	1–5.15	898
1910.106(g)(1)(i)(a)	1–5.17	899
1910.106(g)(1)(i)(e)(5)	1–5.3	891
1910.106(g)(3)(vi)(b)	1–5.3	891
1910.106(g)(3)(vi)(c)	1–5.3	891
1910.106(h)(8)(iii)	1–5.13	896
1910.107(b)(5)(i)	1–5.10	895
1910.107(b)(5)(iv)	1–5.11	895
1910.107(f)(1)	1–5.11	895
1910.107(g)(3)	1–5.13	896
1910.107(h)(12)	1–5.1	890
1910.108(a)(1)	1–5.5	892
1910.108(c)(3)	1–5.6A	892
1910.108(f)(2)	1–5.13	896
1910.109	1–5.12	895
1910.110(b)(14)(iv)	1–5.16	898
1910.132(a)	1–6.1	899
1910.132(a)	1–6.2	900
1910.141(d)(2)(i)	1–7.1	901
1910.145(d)(10)	1–7.2	901
1910.151	1–8.1	902
1910.157	1–9.1	902
1910.167(f)(2)	1–9.2	903
1910.157(f)(2)(i)	1–9.2	903
1910.157(f)(4)	119.2	903
1910.166(c)(3)(i)(a)	1–10.1	904
1910.169(a)(2)(i)	1–10.2	904
1910.169(b)(2)	1–10.2	904
1910.178(a)(3)	1–11.1	905
1910.178(a)(7)	1–11.1	905
1910.178(c)(2)(vii)	1–11.6A	908
1910.178(g)(2)	1–11.4	907
1910.178(k)(1)	1–11.5	907
1910.178(m)(6)	1–11.3	906
1910.178(m)(7)	1–11.5	907
1910.180(h)(3)(v)	1–11.2A	905
1910, Subpart 0	1–12.11	912
1910.212	1–12.7	911
1910.212	1–12.9	912
1910.212	1–12.12	913
1910.212	1–12.27	924
1910.212(a)(1)	1–12.10	912
1910.212(a)(1)	1–12.19	915
1910.212(a)(1)	1–12.23	921
1910.212(a)(3)(ii)	1–12.5	910
1910.212(a)(3)(ii)	1–12.22	920
1910.212(a)(5)	1–12.1	909
1910.213(a)(4)	1–12.15	914
1910.213(c)(1)	1–12.18	915
1910.213(h)(1)	1–12.17	915
1910.213(h)(1)	1–12.18	915
1910.213(h)(3)	1–12.16	915
1910.213(h)(5)	1–12.4	910
1910.215	1–12.13	913
1910.215	1–12.26	923
1910.215(a)(4)	1–12.8	911
1910.217	1–12.7	911
1910.217	1–12.21	916
1910.217	1–12.24	922
1910.217	1–12.27	924
1910.217(a)	1–12.3	909
1910.217(a)(1)	1–12.2	909
1910.217(b)(3)(i)	1–12.20	916
1910.218	1–12.6	911
1910.219	1–12.14	914
1910.219(a)(1)	1–12.19	915
1910.219(e)(3)	1–12.19	915
1910.242(b)	1–13.1	924
1910.243(b)(1)	1–13.3	925
1910.243(d)(4)(iv)	1–13.2	925
1910.252(a)(1)(iii)	1–14.1	926
1910.262(cc)(1)	1–15.3	929
1910.264(c)(1)(ii)	1–15.3	929
1910.264(c)(2)(iii)(a) & (iv)(b)	1–15.3	929
1910.265(d)(1)(ii)(b)	1–15.2	926
1910.266(d)(2)(v) & (vi)	1–15.5	930
1910.268(a)(2)(i)	1–15.1	926
1910.268(a)(3)	1–15.1	926
1910.268(h)(8)	1–15.4	929
1910.401 thru 441	1–23.2	930
1910.1000	1–4.2	888
1910.1003 thru 1016	1–23.4	946
1910.1029	1–4.3	889
1910.1029(h)(2)(i) thru (iii)	1–6.4	901

meet the breathing requirements of the diver and to dilute or flush from the masks and helmets the diver's expelled air. The specifications are based on recommendations of the National Institute of Occupational Safety and Health (NIOSH) and the U.S. Coast Guard. This section is intended to guide the design and selection of masks and helmets, not to serve as a basis for routine operational tests or field verification. Although this section does not require the employer to perform any particular test on helmets and masks, it does require that the appropriate ventilation rate be maintained throughout operational use. Citations shall be issued under this section only after a check with the OSHA National Office of Compliance Programming.

(11) 29 CFR 1910.430(i)(2)—The intent of this section on "oxygen cleaning" is to make sure that certain equipment must be cleaned internally of flammable materials before initially being placed into oxygen service. Similarly, whenever new or replacement components are added, they shall also be cleaned before being connected into the system.

s. 29 CFR 1910.440 Recordkeeping requirements.

(1) 29 CFR 1910.440(a)(1)—The 48-hour time period for reporting fatality and hospitalization (five or more) cases is the maximum time allowed by 29 CFR 1904.8. Employers should be encouraged to report such cases as soon as possible after the occurrence.

(2) 29 CFR 1910.440(a)(2)—The CSHO shall examine the employer's record of diving-related injuries and illnesses which result in the hospitalization for 24 hours or more of any dive team member. These incidents do not have to be *reported* (unless five or more hospitalizations are involved) but the record must be made available to OSHA on request. Frequency of injuries and illnesses may be an indication of improper planning or dive procedures.

(3) 29 CFR 1910.440(b)(1)—This section gives the CSHO the authority to inspect and copy any record required by this standard.

(4) 29 CFR 1910.440(b)(2)—In order to protect employee privacy, it is intended that authorized representatives of employees obtain the specific consent of employees involved prior to receiving individual medical records. OSHA's policy in regards to the medical records is to prevent any misuse of such information that may be available through any requirement of this recordkeeping standard.

(5) 29 CFR 1910.440(b)(4)—This requirement is to provide a mechanism for extended retention of certain records that are important for long-range epidemiological studies. The transfer of these records to NIOSH after the 5-year retention period is intended to relieve the employer of the burden of keeping the records beyond the 5-year period. However, if the employer has an adequate storage and retains the records beyond the 5-year period, no citation shall be issued, provided the records are available for inspection and copying by either OSHA or NIOSH. Such action by the employer shall be considered de minimis.

t. Relationship with the other Federal agencies/transportation to site.

(1) In general, OSHA Area Directors should coordinate inspection activities with local U.S. Coast Guard counterparts in a manner which seeks both to minimize the duplication of agency resources and maximize the protection of affected workers.

(2) Consistent with considerations of operational efficiency and the safety of agency personnel, transportation necessary to the conduct of offshore inspections shall be secured in accordance with the following priority:

(a) Appropriate Federal agency, on an "as available" basis.

(b) Private contractor.

(c) Employer supplied.

(3) Consistent with existing rules and regulations, accident investigation reports, statistical data, and other pertinent enforcement related information should be freely exchanged between other agencies at the local level.

INTERPRETATIONS

OSHA INSTRUCTION
STD 1–23.3
4/19/79

SUBJECT: 1910.1046
Cancelled

INTERPRETATIONS

OSHA INSTRUCTION
STD 1–23.4
8/22/80

SUBJECT: OSHA Medical Surveillance Regulations—Genetic Testing

Purpose. This instruction provides an interpretation of OSHA health standards that require medical surveillance programs specifying a medical history with family and occupational background, including genetic and environmental factors.

Standards Affected. This interpretation applies to all OSHA standards that require a medical surveillance program in which the medical examination shall include a personal history of the employee and/or his family and occupational background, including genetic and environmental factors. These standards are:

1. The 13 carcinogen standards; specifically, paragraph (g)(1)(i) in each of the standards in the series 29 CFR 1910.1003 through 1910.1016.

2. The OSHA Cancer Policy, 29 CFR 1990.151, "model standard."

Background. In February 1980, the New York *Times* published a series of articles on genetic testing. The fourth and final installment of the series did not accurately describe OSHA policies on this issue. An OSHA press release, USDL 80–107 dated February 20, 1980, clarified OSHA's policy. This instruction provides official guidance to OSHA Field Offices on this policy.

Interpretation. The provisions of the standards named in E. of this instruction shall be interpreted as follows:

1. These provisions do not require genetic testing of any employee.

2. The taking of an employee's medical history, including past medical history, a family history, (e.g., inheritable disorders) and an occupational history, shall be considered as a routine part of standard medical practice, and is designed to identify factors important to the employee's general health status.

3. These provisions do not require the exclusion of otherwise qualified employees from jobs on the basis of genetic testing.

OSHA INSTRUCTION
STD 1–24.1
2/2/79

SUBJECT: 1910.20

Purpose. This instruction establishes policy for inspection and compliance procedures and presents interpretations of the Preservation of Employee Exposure and Medical Records—Preservation of records, published in the Federal Register July 19, 1978, interim final rule effective July 19, 1978.

Action.

1. Inspection procedures.

a. Establishing existence of records. As part of the general inspection procedures (outlined in Chapter V, Part D of the FOM, and Chapter I of the IHFOM) the compliance officer shall establish whether employee exposure records or medical records exist. If an employer indicates that no such records exist, the compliance officer should verify this by interviewing several employees or employee representatives as to whether monitoring or medical examinations have been performed.

b. Examination of records. The compliance officer shall examine briefly all records for pertinent information that may assist in the inspection and evaluation of the employer's health program. The compliance officer shall record information pertaining to the records as outlined in the FOM, Chapter XII, on the Narrative, OSHA-1A Form, and, if necessary, on the Worksheet, OSHA-1B Form.

c. Acess denied. If employee exposure and/or medical records exist and an employer intentionally and knowingly refuses to make the covered records available under the provisions of 29